Maintaining Software Images

Manually upgrading your devices to the latest software version can be error prone and time consuming. Cisco Prime Infrastructure simplifies the version management and routine deployment of software updates to your devices by helping you plan, schedule, download, and monitor software image updates. You can also view software image details, view recommended software images, and delete software images.

Prime Infrastructure stores all of the software images for the devices in your network. The images are stored according to the image type and version.

Before you can upgrade software images, you must configure your devices with SNMP read-write community strings that match the community strings entered when the device was added to Prime Infrastructure.

Table 15-1 describes the different processes involved in managing software images and whether the processes are supported in the Unified Wireless LAN Controllers and devices.

Table 15-1 Software Image Management Processes and Supported Devices

Software Image Management Processes	Description	Unified WLCs	3850 Cisco IOS XE 3.2.1	5760 Cisco IOS XE 3.2.1
Image import from device	Ability to import software image from devices that are already deployed to Prime Infrastructure. The software image can then be distributed to other devices.	Not supported because the software image cannot be reassembled into a package.	Supported	Supported

Table 15-1 Software Image Management Processes and Supported Devices (continued)

Software Image Management Processes	Description	Unified WLCs	3850 Cisco IOS XE 3.2.1	5760 Cisco IOS XE 3.2.1
Image import from file	Ability to import software image from known location on a file server to Prime Infrastructure. The software image can then be distributed to other devices.	Supported	Supported	Supported
Image import from URL	Ability to import software image from network accessible locations (URI/URL) to Prime Infrastructure. The software image can then be distributed to other devices.	Supported	Supported	Supported
Image import from Cisco.com	Ability to import software image from a trusted Cisco website to Prime Infrastructure. The software image can then be distributed to other devices.	Supported	Supported	Supported
Image upgrade/distribution	Ability to upgrade software image on the managed devices from Prime Infrastructure. This allows you to update the software image for multiple devices based on demand or at a later point in time as scheduled. The feedback and status are displayed during the upgrade and devices can be restarted, if required. In large deployments, you can stagger reboots so that the service at a site is not completely down during the upgrade window. **Note** Software image distribution for Cisco WiSM2 controllers is not supported.	Supported	Supported	Supported
Image recommendation	Ability to recommend a compatible image for the devices that are managed from Prime Infrastructure.	Not supported because the flash requirement is not available.	Supported	Supported
Image upgrade analysis	Ability to analyze the software images to determine the hardware upgrades required before you can perform the software upgrade.	Not supported because there is no minimum requirement for RAM or ROM. The newly upgraded image replaces the existing image after an upgrade.	Supported	Supported

Setting Image Management and Distribution Preferences

You can specify image management preferences such as whether to reboot devices after successfully upgrading a software image, and whether device software images on Cisco.com should be included during inventory collection of the devices. Specifying image management preferences changes the default behavior of your devices.

Because collecting software images can slow the data collection process, by default, Prime Infrastructure does not collect and store device software images when it gathers inventory data from devices.

To set image management and distribution preferences:

Step 1 Choose **Administration > System Settings > Image Management**.

Step 2 Enter your Cisco.com username and password so that you can access software images from the cisco.com.

Step 3 To have Prime Infrastructure automatically retrieve and store device images when it collects device inventory data, check **Collect images along with inventory collection**.

Step 4 Select other options as necessary. Hover your mouse cursor on the information icon to view details about the options.

Note To have Prime Infrastructure use SSH and not Telnet, check the **Use SCP for image upgrade and import** option.

The Config Protocol Order field specifies the order in which the protocol is used. For example, if SSH is listed before Telnet, SSH is used first, and Telnet is used next.

Step 5 Click **Save**.

Step 6 Choose **Operate > Image Dashboard** to view all of the software images retrieved by Prime Infrastructure. The images are organized by image type and stored in the corresponding software image group folder.

Managing Software Images

The software image dashboard displays the top software images used in your network and allows you to change image requirements, see the devices on which an image is running, and distribute images.

Step 1 Choose **Operate > Image Dashboard**.

Step 2 Click a software image name to display details about the image.

Step 3 Do any of the following:

- Change image requirements. See Changing Software Image Requirements, page 15-5.
- View the devices on which the software image is running.
- Distribute the image. See Deploying Software Images to Devices, page 15-5.

Importing Software Images

It can be helpful to have a baseline of your network images by importing images from the devices in your network. You can also import software images from Cisco.com and store them in the image repository.

By default, Prime Infrastructure does not automatically retrieve and store device images when it collects device inventory data. (You can change this preference as described in Setting Image Management and Distribution Preferences.)

Note Prime Infrastructure waits for a maximum of 100 minutes for an image to be imported to the Software Image Repository. If an image takes longer than 100 minutes to import, the job fails and Prime Infrastructure displays an error message in **Administration > Jobs Dashboard**.

To import a software image:

Step 1 Choose **Operate > Software Image Management**.

Step 2 Click **Import**.

Step 3 Specify the source from which the software image is imported. You can specify any one of the following sources:

- Device—An existing device.
- Cisco.com
- URL—Specify the FTP URL from where you can import the software image. You can use an HTTP URL where user credentials are not required.
- File—A local file on the client machine.

Note For wireless LAN controllers, you can import software images from Cisco.com, file, or a URL, but not from a device. For more information about Software Image Management Processes and Supported Devices, see Table 15-1.

Step 4 Specify **Collection Options** and when to import the image file. You can run the job immediately or schedule it to run at a later time.

Note The image import job is non-repetitive.

Step 5 Click **Submit**.

Step 6 Choose **Administration > Jobs Dashboard** to view the status about the image management job. The Duration field is updated after the job completes.

Related Topics

- Deploying Software Images to Devices
- Distributing Software Images from Cisco.com

Changing Software Image Requirements

To change the RAM, flash, and boot ROM requirements that a device must meet for a software image to be distributed to the device:

Step 1 Choose **Operate > Software Image Management**.

Step 2 Navigate to and select the software image for which you want to change requirements, then click **Image Details**.

Step 3 Modify the necessary fields, then click **Save**. Your changes are saved in the software version in which you made the change.

Deploying Software Images to Devices

You can distribute a software image to a device or set of similar devices in a single deployment. Prime Infrastructure verifies that the device and software image are compatible.

Note Software image distribution for Cisco WiSM2 controllers is not supported.

Step 1 Choose **Deploy > Software Deployment**.

Step 2 Select the software images that you want to distribute, then click **Distribute**.

By default, the devices for which the selected image is applicable are shown.

Step 3 Check **Show All Devices** to see all of the devices available in Prime Infrastructure, or from the Device Groups list, select the devices that are running the image you selected.

Note If you check **Show All Devices**, all devices are displayed even if the software image you selected is not applicable for all of the devices.

Step 4 Choose the image name in the Distribute Image Name field to change your selection and pick a new image, then click **Save**.

Step 5 To change the location on the device in which to store the software image, choose the value displayed in the Distribute Location field, select a new location, then click **Save**.

The Status and Status Message fields display the validity of the selections you made. For example, if the status is green, there is adequate space available to store the image on the specified location on the device.

Step 6 Choose **Administration > System > Image Management** to change the default distribution options.

Step 7 Specify schedule options, then click **Submit**.

Note The distribute image job is non-repetitive.

Step 8 Choose **Administration > Jobs Dashboard** to view details about the image management job. The Duration field is updated after the job completes.

Distributing Software Images from Cisco.com

Step 1 Choose **Operate > Software Image Management**.

Step 2 Navigate to and select the software image for which you want to change requirements, then click **Image Details**.

Step 3 Expand **Device Details**, select a device or devices on which to distribute the image, then click **Distribute**.

Note Only the devices that are running the specific software image you modified are displayed as selection choices.

Step 4 Choose one of the following image sources:

- **Recommend Image from Cisco.com** to select an image available on Cisco.com. Specify options, click **Start Recommendation**, then skip ahead to Step 6.
- **Select Image from Local Repository** to select an image stored locally. Then, under Local Repository:
  - Select the **Show All Images** check box to display all images available in the Prime Infrastructure repository.
  - Unselect the **Show All Images** check box to display the software images applicable to the selected device.

Step 5 Select the image to distribute, then click **Apply**.

Step 6 Choose the image name in the Distribute Image Name field to change your selection and pick a new image, then click **Save**.

Step 7 To change the location on the device in which to store the software image, choose the value displayed in the Distribute Location field, select a new location, then click **Save**.

The Status and Status Message fields display the validity of the selections you made. For example, if the status is green, there is adequate space available to store the image on the specified location on the device.

Step 8 Specify Distribution Options. You can change the default options in **Administration > System > Image Management**.

Step 9 Specify schedule options, then click **Submit**.

Analyzing Software Image Upgrades

Prime Infrastructure can generate an Upgrade Analysis report to help you determine prerequisites for a new software image deployment. These reports analyze the software images to determine the hardware upgrades (boot ROM, flash memory, RAM, and boot flash, if applicable) required before you can perform the software upgrade.

The Upgrade Analysis report answers the following questions:

- Does the device have sufficient RAM to hold the new software?
- Is the device's flash memory large enough to hold the new software?

To analyze software image upgrades:

Step 1 Choose **Operate > Software Image Management**.

Step 2 Click **Upgrade Analysis**.

Step 3 Choose the source of the software image that you want to analyze.

Step 4 Select the devices on which to analyze the software image.

Step 5 Select the images to analyze for the selected devices.

Step 6 Click **Run Report**.